

program a device to react to the energy transfer device **100** in a specific manner, and/or program the energy transfer device **100** to react to certain other devices in a specific manner. For example, a user may specify whether or not a certain device should cooperate in transferring and/or receiving energy. This can depend on various factors, such as the particular device's own energy needs, its "selfishness" (e.g., programmed to receive and/or transfer energy based on certain factors), and/or an identifier, such as an identifier of the energy transfer device **100** and/or an identifier of the other device to which the energy transfer device **100** is connected.

[0037] Upon connecting a device (e.g., first or second portable devices **114**, **116**) to energy transfer device **100**, device interface module **310** is capable of determining various details regarding the particular connected device. For example, device interface module **310** can leverage various parameters and preferences stored in preference database **314** to determine that the device is a particular type of device (e.g., a laptop computer), that the device is a particular model of that type (e.g., a MacBook Air), and that it is a particular one of that type (e.g., Bob Jones's MacBook Air). Device interface module **310**, via preference database **314**, may also determine, for example, preferences for that device (e.g., Bob Jones's MacBook Air must retain a minimum of 20% state of charge and is only authorized to charge Bob Jones's other devices). It should be known that this example is merely illustrative and non-limiting.

[0038] FIG. 4 illustrates display **400** of an energy transfer device (e.g., energy transfer device **100** of FIG. 1) according to one embodiment. In some embodiments, display **400** is integrated into the energy transfer device, such as integrated into input/output device **112** of FIG. 1. In other embodiments, display **400** is integrated via an application running on the host device and/or the recipient device.

[0039] Display **400**, in conjunction with user interface module **308**, is configured to display various types of information to a user and/or to receive various types of inputs from a user. In some embodiments, display **400** includes screen **402**, such as an LCD screen, for presenting to the user textual and/or graphical information regarding the energy level of the host and/or the recipient device. For example, screen **402** includes fields for displaying current charge level **404** and minimum charge level **406** of the host device; and current charge level **408**, desired charge level **410**, and charge time **412** of the recipient device.

[0040] Display **400** also includes buttons **414** for receiving various inputs from a user. In other embodiments, display **400** includes touch-sensitive features (e.g., a touch screen) through which display **400** can receive tactile inputs from a user. For example, in some embodiments, a user can specify desired charge **410** or charge time **412** to control energy transfer parameters for a recipient device. In other embodiments, various graphics and/or colors are utilized to indicate charge levels. For example, current charge level **408** of the recipient device can be represented by an outline of a battery that is darkened according to a state of charge of the recipient device.

[0041] FIG. 5 is a flow diagram of a method of transferring energy performed by an energy transfer device, according to one embodiment. For illustrative purposes, FIG. 5 will be described in connection with energy transfer device **100** of FIG. 1. However, the method of FIG. 5 can be performed by other devices according to other embodiments.

[0042] At **502**, energy transfer device **100** detects a connection to a first portable device (e.g., first portable device **114**). For example, energy transfer device **100** may detect that first connector **104** is connected to a port of first portable device **114**. At **504**, upon connection to a first portable device, energy transfer device **100** determines various identifiers and/or energy parameters of the first portable device. For example, as mentioned above, energy transfer device **100** may send various queries to the first portable device to determine, for example, (1) an identifier (e.g., identification number); (2) device type (e.g., model, manufacturer, owner, etc.); (3) software type (e.g., operating system, power control program, battery handler, etc.); (4) battery specifications (e.g., maximum energy level); (5) energy transfer specifications (e.g., minimum and maximum voltage and current levels, and maximum energy transfer rates); and/or (6) present energy level (e.g., state of charge). In some embodiments, energy transfer device **100** cross-references an identifier of the first portable device with a database (e.g., preferences database **314**) to determine energy parameters.

[0043] At **506**, energy transfer device **100** detects a connection to a second portable device (e.g., second portable device **116**). For example, energy transfer device **100** may detect that second connector **106** is connected to a port of second portable device **116**. At **508**, upon connection to a second portable device, energy transfer device **100** determines various identifiers and/or energy parameters of the second portable device, such as those mentioned above.

[0044] In some embodiments, energy transfer device **100** accepts user inputs of various energy transfer parameters, such as (1) authorization to transfer or to receive energy; (2) selection of the host device and the recipient device; (3) desired amount of energy to be received by recipient device; (4) desired state of charge of recipient device; (5) maximum time available for transfer; (6) desired amount of energy to be transferred by host device; (7) maximum state of charge of recipient device; (8) minimum state of charge of host device; and/or (9) desired state of charge of host device. In various embodiments, such inputs are received directly via energy transfer device **100** and/or via an application running on a portable device connected to energy transfer device **100**. In some embodiments, energy transfer device **100** receives various energy transfer parameters directly from one or both of the portable devices connected to it. In some embodiments the energy transfer parameters are sent by a portable device in response to a query sent to it from energy transfer device **100**. In other embodiments, the portable device(s) proactively send the energy transfer parameters, e.g., once they detect their connection to energy transfer device **100**, once they determine their intent to donate or receive energy, etc.

[0045] At **510**, energy transfer device **100** transfers energy between the first and second portable devices. Upon initiating energy transfer, energy transfer device **100** analyzes the energy parameters of the first portable device that were determined at **504** with those of the second portable device that were determined at **508**. Energy transfer device **100** then analyzes any energy transfer parameters and determines the particular parameters that will control the actual transfer of energy between the first and second portable devices such that the energy transfer is within the specified capabilities of each of the first and second portable devices.

[0046] In some embodiments, energy transfer device **100** requires a user input to initiate energy transfer. In other